Expedición Internacional Vaquita Marina 2015

Week 3
Oct 9-15

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HONORARY VAQUITA OBSERVER:
Secretary Rafael Pacchiano Alamán

R/V Ocean Starr
Stabbert Maritime

Estimating abundance of Mexico's critically endangered porpoise

Visual Team Weekly Science Summary

A week of lovely weather has given our hopes for this rare creature quite the roller coaster ride. Friday our hopes were raised when we saw a cluster of 7 sightings. Each sighting was of a single or pair of vaqutias for a total of 11 vaquitas seen in a few hours. On Saturday we saw 2 more sightings of 4 vaquitas and on Sunday a single pair. The last 3 days in good sighting conditions and much in prime vaquita habitat we had no confirmed sightings. Finally today we got a very likely sighting of vaquitas, but only one sighting in a long day of good conditions in prime habitat. It is difficult to not have our hopes dashed on these days, when we have perfect viewing conditions in prime habitat, but no vaquitas. We hope this is the lowest point of the roller coaster ride.

So far we have seen 25 confirmed vaquitas after our first 20 days of survey and of those 25 some could have been the same animals seen multiple times. Over the 64 days of the survey we will see every square meter of water multiple times in the core area of vaquita's distribution. We fully expect to see some animals several times and that the number of sightings when we finish the cruise may be more than the number of vaquitas in existence. This does not worry us.

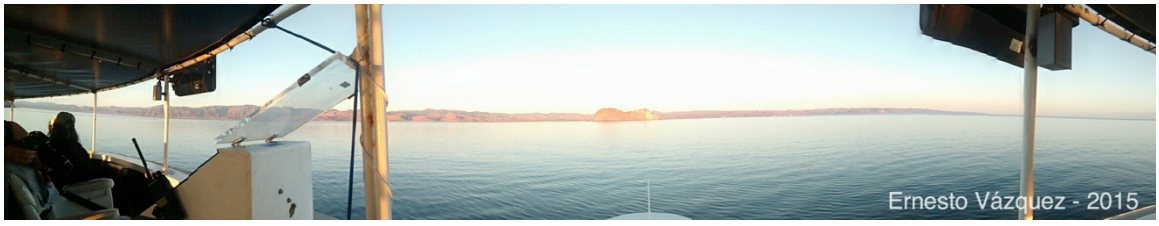
The survey we are conducting is not a "census" (a count of individuals). During the 64 days of the survey, vaquitas will move all over their distribution and we have no way to identify individuals. What we are doing is called a "line-transect survey" and it estimates the density of vaquitas throughout their distribution (more details at Survey Design). In simple terms, the number of vaquitas will be the number seen divided by the area we cover multiplied by the total area of the vaquita distribution. Because we will cover the core area (the area where vaquitas were seen in 1997 and 2008) multiple times, the number of vaquitas seen could easily be more than the abundance estimated from the density. In a nutshell, the number of vaquitas is not very meaningful in this type of survey.

Why do we cover the core distribution area more than once? To gain precision. As animals get more and more rare, it becomes harder and harder to get a precise estimate of density. Because the Government of Mexico needs the most precise estimate we can get, we designed the survey to put more effort into the area where vaquitas have been found in all previous surveys.

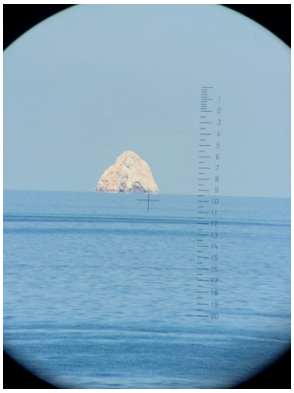
With about 1/3 of the survey completed to date, we can confirm that vaquitas are there but rare. So far, we have seen only 1 vaquita roughly every 60 miles in good conditions with 6 pairs of big-eyes backed up by observers with over 200 years of experience looking for porpoises on line-transect surveys. Is that good news or bad news? It is good that we are seeing this rare creature and a far better outcome than the Chinese river dolphin survey that 3 of us experienced in 2006. That survey found zero dolphins and concluded they had probably already gone extinct. Beyond that, for vaquita, it is just too early to say much at this point and we caution about jumping to conclusions. We can easily predict that there will be surprises yet to come in this expedition, but when and what those surprises will be…will be a surprise. Let's hope they will be happy surprises.

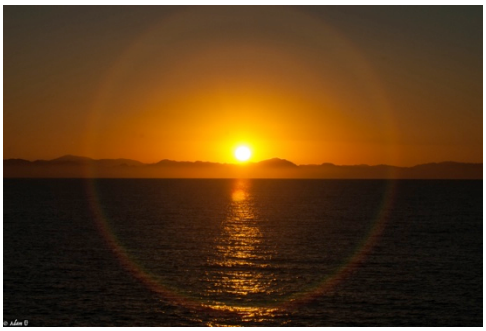
On Tuesday, Oct. 13, we had four visitors to observe the survey operations, and to discuss various scientific aspects of Expedición Internacional Vaquita Marina 2015. Pablo Valdez from the US Embassy in Mexico City and Jason Vorderstrasse from the US Consulate in Tijuana have been interested and helpful in raising awareness about the vaquita issue and promoting US-Mexican cooperation to save the species. Jaime Alejandro Lechuga Vega (Operations Coordinator) and Isaac Jonathan García Pereda (Director in Baja California) work for PROFEPA, the agency that protects natural areas in Mexico. The Mexican Navy provided rapid transportation for the visitors via a high-speed launch.

During the 7-day period of Oct 9-15, light winds allowed us to cover 369 nm of trackline, with a total of 173 sightings of marine mammals. There were 11 sightings of 19 vaquitas.



Visitors, scientists and scenery





Survey Overview

Vaquitas are a critically endangered porpoise found only in a small part of the Upper Gulf of California, Mexico. Vaquita are the smallest porpoise and have the smallest distribution of any marine mammal. Recent acoustic data indicating a strong decline in vaquita numbers prompted the government of Mexico to take unprecedented steps to save their porpoise from extinction resulting from accidental deaths when animals drown in fishing nets that are set for fish and shrimp. The 2-year ban on gillnets within the distribution of vaquitas was announced by President Peña Nieto in April of 2015. This survey will obtain the most precise abundance estimate of vaquitas possible at the beginning of the ban period.

The Vaquita Expedition 2015 will take place from September 26 to December 3. Chief Scientists for the survey are Lorenzo Rojas-Bracho (from Mexico's Department of Environment and Natural Resources, SEMARNAT) and Barbara Taylor (from Southwest Fisheries Science Center, NOAA Fisheries); the survey is being supported by SEMARNAT. Both visual and acoustic methods are required to obtain a precise abundance estimate. The entire distribution of vaquitas between 20 and 50 meters deep will be visually surveyed from a research ship (the R/V *Ocean Starr*) using 6 huge binoculars called 'big eyes'. These 25-power binoculars are needed to see the shy vaquita before they react to the ship. Scientists came from Mexico, the US, United Kingdom and Germany to provide porpoise sighting expertise.

Mexico is a world leader in acoustic monitoring of porpoises using a passive acoustic device called a CPOD. Armando Jaramillo-Legorreta and his team will deploy 134 CPODs will in a grid in the shallow water vaquita distribution where the ship cannot go. The CPODs detect the very high frequency clicks that vaquitas use to find fish in the productive, muddy waters. Developing the acoustic monitoring system was the primary objective of the last vaquita survey in 2008. The system was designed to detect the hoped for 4%/year recovery of vaquita. Instead, the system detected a dramatic 67% decline between 2011 and 2014.

The project is a research collaboration between SEMARNAT and the Southwest Fisheries Science Center, NOAA Fisheries. Support is provided from Instituto Nacional de Ecologia y Cambio Climatico, Comisión Nacional de Áreas Naturales Protecion, Comisión Nacional para el Conocimiento y uso de la Biodiversidad, and The Marine Mammal Center.